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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/973,416	11/14/97	HARA M	13700-0176

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EXAMINER	
KRUER,K	
ART UNIT	**PAPER NUMBER**
1773	17

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/973,416	Hara et al.
Examiner	**Group Art Unit**
Kevin Kruer	1773

☒ Responsive to communication(s) filed on *Aug 28, 2000*.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-21* is/are pending in the application.

Of the above, claim(s) *20 and 21* is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-19* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☒ Claims *20 and 21* are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223). Koyama teaches a laminate comprising an oxygen absorbing resin layer sandwiched between inner and outer layers (see Fig 2). The oxygen absorbing resin is a blend comprising a polyvinyl alcohol and an olefin resin in a weight ratio of 99:1-90:10 (claim 1). An oxygen scavenger is incorporated into the blend in the amount of 5 to 200 parts by weight, per 100 parts by weight of the blend (col 6, lines 18-2). The inner layer allows permeation of oxygen and moisture and prevents direct contact between a liquid and the oxygen scavenger (col 6, lines 58-60). The inner layer is most preferably a polyolefin (col 6, lines 27-36) with a thickness of 1-20 microns (col 6, lines 56-57). Koyama does not teach that the oxygen scavenger may be an ascorbic acid, or that it is desirable for the layer to further include a zeolite.

Daiichi Seiyaku teaches an oxygen scavenger comprising a zeolite, either synthetic or natural, which supports one or more ascorbic or araboascorbic acids, their salts or derivatives thereof. The weight of the zeolite is 1-50 times that of the ascorbic acid. The oxygen scavenger is apparently incorporated into the foodstuff that it is protecting. Thus, Daiichi Seiyaku does not

teach the incorporation of a zeolite supported oxygen scavenger into a multi-layer laminate. However, Teumac teaches that oxygen scavengers which were once added directly to foodstuff are now being incorporated into the food packaging container (see Background of the Invention, specifically, col 3, lines 48+). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the oxygen scavenger taught in Daiichi Seiyaku into the EVOH blend layer of the laminate taught in Koyama in order to enhance the oxygen barrier properties of the laminate.

3. Claims 12, 13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pat. No. 5,274,024) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223), as applied to claims 1, 3, and 5-8 above, and further in view of Moritani et al. (Pat. No. 4,999,229). Koyama in view of Daiichi Seiyaku and Teumac is relied upon as above. However, none of the relied upon references teach that the inner layer should have a moisture permeability of not less than 5 g/m^2-day. However, Moritani teaches a three-layer laminate comprising an inner layer having low moisture permeability, an intermediate gas-barrier layer, and an outer layer. Moritani teaches that it is desirable that the inner layer has a moisture permeability of not more than $20g/m^2$-day and may be selected from the group consisting of polyolefins, polyamides, and polyesters (col 9, lines 21-45). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a polyolefin with a moisture permeability of not more than $20g/m^2$-day as the inner layer of the laminate taught in Koyama because Moritani teaches that laminates with such inner films possess superior gas barrier properties.

4. Claims 1, 3, 5-8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bettle III (Pat. No. 5,320,889) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223). Bettle teaches a laminate comprising an ethylene vinyl alcohol inner layer and an adjacent layer comprising polyethylene and EVOH (10wt% or less)(col 7, lines 1-14). Bettle does not teach that the layer comprising the HDPE/EVOH blend should contain a zeolite and an ascorbic acid.

Daiichi Seiyaku teaches an oxygen scavenger comprising a zeolite, either synthetic or natural, which absorbs one or more ascorbic or araboascorbic acids, their salts or derivatives thereof. The weight of the zeolite is 1-50 times that of the ascorbic acid. The oxygen scavenger is apparently incorporated into the foodstuff it is protecting. Thus, Daiichi Seiyaku does not teach the incorporation of a zeolite into a multi-layer laminate. However, Teumac teaches that oxygen scavengers which were once added directly to foodstuff are now being incorporated into the food packaging container (see Background of the Invention, specifically, col 3, lines 48+). Therefore, since it is well known to incorporate oxygen scavengers into the layers of polymeric containers, it would have been obvious to one of ordinary skill in the art to incorporate the oxygen scavenger taught in Daiichi Seiyaku into the ethylene/EVOH blend layer of the laminate taught in Bettle in order to enhance its oxygen barrier properties.

5. Claims 1, 3, 4-9, 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lofgren et al. (Pat. No. 5,133,999) in view of in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pa. No. 5,663,223). Lofgren teaches a laminate comprising a barrier layer composed of about 20-80 wt.% polyethylene and about 80-20wt.% ethylene vinyl

alcohol (col 4, lines 61-68). The barrier layer is the inner layer of the laminate (see Fig 1). Lofgren does not teach that the layer may comprise an oxygen scavenger or a zeolite.

Daiichi Seiyaku teaches an oxygen scavenger comprising a zeolite, either synthetic or natural, which absorbs one or more ascorbic or araboascorbic acids, their salts or derivatives thereof. The weight of the zeolite is 1-50 times that of the ascorbic acid. The oxygen scavenger is apparently incorporated into the food it is protecting. Thus, Daiichi Seiyaku does not teach the incorporation of a zeolite into a multi-layer laminate. However, Teumac teaches that oxygen scavengers which were once added directly to foodstuff are now being incorporated into the food packaging container (see Background of the Invention, specifically, col 3, lines 48+). Therefore, since it is well known to incorporate oxygen scavengers into the layers of polymeric containers, it would have been obvious to one of ordinary skill in the art to incorporate the oxygen scavenger taught in Daiichi Seiyaku into the regrind layer of the laminate taught in Lofgren in order to enhance the laminate's oxygen barrier properties.

6. Claims 1, 3, 5-11, 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itamura et al. (Pat. No. 5,492,953) in view of JP-0172416 (assigned to Daiichi Seiyaku Co.) and Teumac et al. (Pat. No. 5,663,223). Itamura teaches a composition comprising a polyolefin and a saponified product of ethylene-vinyl acetate (abstract) in a ratio between 65:35 to 99.7:0.3 (col 4, lines 61-65). The ethylene-vinyl acetate has a saponification degree of at least 96% (abstract). The blend may be utilized in any number of different laminates (see col 9, lines 1-9) wherein F represents the ethylene/EVOH blend, A represents a polyolefin, B represents the

saponified ethylene-acetate, and AD represents an adhesive. Itamura does not teach that the composition may comprise a zeolite and oxygen scavenger.

Daiichi Seiyaku teaches an oxygen scavenger comprising a zeolite, either synthetic or natural, which absorbs one or more ascorbic or araboascorbic acids, their salts or derivatives thereof. The weight of the zeolite is 1-50 times that of the ascorbic acid. The oxygen scavenger is apparently incorporated into the food it is protecting. Thus, Daiichi Seiyaku does not teach the incorporation of a zeolite into a multi-layer laminate. However, Teumac teaches that oxygen scavengers which were once added directly to foodstuff are now being incorporated into the food packaging container (see Background of the Invention, specifically, col 3, lines 48+). Therefore, since it is well known to incorporate oxygen scavengers into the layers of polymeric containers, it would have been obvious to one of ordinary skill in the art to incorporate the oxygen scavenger taught in Daiichi Seiyaku into the ethylene/EVOH layer of the laminate taught in Itamura in order to enhance the laminate's oxygen barrier properties.

Itamura further teaches that an additive may be blended with EVOH, extruded, pelletized, and then kneaded with the polyolefin resin (see example 24). Therefore, the examiner takes the position that it would have been obvious to one of ordinary skill in the art to knead the oxygen scavenging composition taught in Daiichi Seiyaku and EVOH together, and then disperse that composition into a polyolefin composition because Itamura shows that it is known to knead EVOH and a filler, and disperse the resulting composition into a polyolefin composition.

7. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of the above combination of references and further in view of Hofeldt et al. (Pat. No. 5,204,389). The

combinations of references are relied upon as above. However, none of the combinations teach that the oxygen scavenger should be contained in amounts ranging from 0.05-10wt.% of the resinous composition. However, Hofeldt teaches a film for a container closure which comprises ascorbates or mixtures thereof with isoascorbates or sulfites (col 5, lines 3-7). The preferred amount of ascorbate is at least 0.5wt.% based on the polymeric matrix material, and it is generally less than 10wt% (col 5, lines 51-55). Therefore, since Hofeldt teaches that an effective amount of ascorbate for the purpose of oxygen scavenging is between 0.5-10wt%, it would have been obvious to one of ordinary skill in the art to utilize such amounts of ascorbate in the above taught laminates.

Response to Arguments

This action is a first action following the filling of a CPA on March 28, 2000. Therefore, no rejections are outstanding. However, the examiner would like to take this opportunity to respond to some of the arguments on record which may be relevant to the present rejections.

Applicant argues that by kneading the reducing agent and the hydrophillic thermoplastic and then adding said kneaded product to a hydrophobic resin, the resulting product is a dispersion of localized areas of hydrophillic thermoplastic and the reducing agent in a hydrophobic matrix. Applicant provides a declaration which includes resin particles produced from the direct compounding of the water insoluble resin, the reducing compound, and the hydrophobic resin. However, only one of the Comparative Examples (comparative example A) correlates (with respect to parts by weight) to the examples in the specification (example 1). The other

comparative examples cannot be used to show unexpected results since more than one variable is altered (the composition and method of processing).

Furthermore, Applicant's arguments do not agree in scope with the claimed invention. Applicant's data attempts to show the difference between a resin particle manufactured according to the disclosed method, and a particle manufactured according to the teachings of the prior art. However, the claims are no limited to a particle wherein the reducing compound and the water insoluble compound are initially mixed, and then dispersed in the thermoplastic resin at a temperature lower than the melting point of the water insoluble resin. Furthermore, the claims are not directed to a resin particle, but rather to a resin composition and a film comprised from that resin composition. Thus, applicant's arguments are not persuasive.

Applicant further argues that the applied art is deficient because Seiyaku teaches that the ascorbic acid is released from the zeolite when contacted with food. However, there is nothing of record which states that the ascorbic acid is not released in Applicant's embodiment. Furthermore, it is not clear if the ascorbic acid taught in Seiyaku is being released to the surface of the zeolite, or if it is being released completely from the zeolite. Furthermore, the claims are not limited to a composition in which the ascorbic acid is not "released." Therefore, Applicant's arguments are not persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is (703) 305-0025. The examiner can normally be reached on Monday-Friday from 7:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703)305-5436.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0651.

Kevin R. Kruer
Patent Examiner

Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700